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# The Organizational Context of Process Reengineering Project Initiatives

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## Abstract

**In this study, three potentially facilitating sources of influence on BPR initiatives -- innovative capacity of the organization, IS maturity and Strategy-IS interface -- were examined. It was found that while factors related to IT factors such as experience in mainframe and client/server computing may facilitate the decision to reengineer, they are not critical to project success. On the other hand, factors having significant relationships beyond the initial decision include variables pertaining to innovative capacity of the organization and Strategy-IS interface.**

## Introduction

**With glowing reports on business process reengineering (BPR) successes, a high level of expectation has led to the recent rush to implement the reengineering concept. With more experience accumulated, however, there is growing realization that IT is a critical enabler, but implementing reengineering involves complex socio-technical change in the organization (Mumford, 1994; Smith and Wilcooks, 1995). In this study, we seek to better understand the organizational context of BPR and attempt to examine three sources of influence on BPR initiatives: 1) the innovative capacity of the organization, 2) IS maturity and influence and 3) strategy-IS interface. We will study how these factors are related to: 1) the decision to reengineer and 2) perceived success of BPR projects. Independent and dependent variables for the study can be found in Table 1.**

**Three variables are included to gauge the innovative capacity of the organization. Integration and decentralization of decisions are related to the idea of organic organization. In contrast to mechanistic organizations, organic organizations can be expected to foster a higher level of individual initiatives and innovative behaviors. As BPR often require collaboration between different departments participating in the same business process, interdepartmental integration may provide a more receptive environment for not only launching a reengineering project, but facilitating its implementation also. However, the very success of BPR may require more decentralized structure as reengineering typically calls for the empowering of on-site personnel in the field (O'Hara and Watson, 1995). To compensate for the possible loss of innovative capacity in mechanistic organizations, a structural "organic overlay" may be superimposed on top of these organizations (Pierce and Deldecq, 1977). Unencumbered by the regular bureaucracies, such structural overlays typically take the form of a "venture group" dedicated to searching and introducing innovative ideas (Zmud, 1982).**

**IT is an important and often essential enabler of BPR. Three measures of IS maturity and influence are included in this study. Experience with mainframe computing would generally be indicative of IS maturity in terms of technical competence accumulated. It has been pointed out that C/S represents a revolutionary departure from the traditional environment through its enabling role in facilitating the emerging management and organizational forms based on empowering on-site personnel and lateral collaborations, which are consistent with the principles of reengineering (O'Hara and Watson, 1995). Several researchers have studied the power and influence of the IS function in the organization (Lucas, 1984; Saunders and Scamell, 1986). In this study, we choose one decision area that is integral to IS responsibility -- the selection of IS projects, and attempt to explore how the influence of IS in this decision may be related to reengineering project initiatives.**

**Prior to launching a BPR program, it is important to realize that BPR is a strategic endeavor, and the processes selected for reengineering should be critical to the firm's strategic objectives. In this study, the variable representing strategy-IS interface is IS-business planning integration which refers to the extent to which IS planning activities are aligned with and influence overall strategic planning of the business (Premkumar and King, 1992).**

## Research Methods and Results

**An empirical field study was conducted by gathering data from practicing IS executives. A survey instrument was developed and iteratively refined through a multistage process to enhance its content validity (Nunnally, 1967). The final questionnaire was administered to a sample of 900 executives drawn from a database of 5,000 IS executives provided by an information service firm. The sample was selected on the basis of revenue (greater than $50 million). Of the 900 initial mailings, 45 were returned as undeliverable. A total of 313 completed responses were received yielding an effective response of 36.6%.**

**Previously validated instruments were used either directly or modified, and others were developed from a review of the literature. Information on the *BPR decision* was obtained with a simple yes/no question: have you attempted business process redesign in your organization? The approach for measuring reengineering success used in this study is the "perceived level of success." (DeLone and McLean, 1992), and the respondents were asked to answer one seven-point scaled question about the *perceived success* level of their reengineering projects (1: unsuccessful, 7: successful). The measure for interdepartmental integration was adopted from Grover (1993) who developed and validated the scale based on the work conducted by Ein-Dor and Segev (1982). Centralization of decision making was assessed via a measure developed and validated by Ramamurthy (1990) based on the work of Miller and Friesen (1982). Measurement of the existence of organic structural overlay is objectively accessed. All variables for IS maturity and influence are assessed objectively. The scale for IS-business planning integration was based on the work of Premkumar and King (1992). Of the 313 firms, 219 (70%) indicated that reengineering has been attempted in their companies. Seven relationships were examined and the results are presented in Tables 1.**

**The first relationship is strong as the data showed higher degree of interdepartmental integration for reengineering firms than non-reengineering firms ($p < .001$). Among reengineering firms, the extent of interdepartmental integration is significantly correlated to perceived level of success ($r = .24$, $p < .001$). The second relationship is moderate as reengineering companies showed less tendency to centralize decisions than non-reengineering firms($p < .01$), but no relationship was detected for success. The result for relationship 3 is based on a chi-square table (not shown) which indicates that, with the organic structural overlay, organizations are more likely to attempt BPR than without the overlay ($p < 0.01$). Among BPR firms, however, no difference was found between the two groups in perceived success. For IS maturity and influence, we found that reengineering firms have more experience in mainframe and client/server computing than non-reengineering firms. Interestingly, for relationship 6 the data suggests that the extent of IS influence in IS project selection is higher among non-reengineering firms than reengineering firms. This means that user influence, rather than IS influence is higher among reengineering firms than non-reengineering firms. Further, this user influence is also significantly associated with perceived reengineering success ($r = .1598$, $p < .05$). Finally, for the last relationship in Table 1, we found that IS-business planning integration is significantly greater for reengineering firms than for non-reengineering firms ($p < .001$), and that it is significantly related to perceived success ($r = .2203$, $p < .001$).**

### Discussion of Findings

**The results for the first two relationships suggest that the expanded capacity for innovation in organic organizations may be particularly helpful in reengineering projects initiatives. While decentralized decision making may facilitate the adoption of the reengineering concept,**

**interdepartmental integration is important to both the decision and success. Thus, the likelihood of succeeding in reengineering, which typically involves the institutionalization of inter-functional cooperation and free flow of ideas, would increase for those organizations that have already been predisposed to this type of practice and culture. On the other hand, decentralized organizations that are low in inter-functional collaboration may have better chance in undertaking the BPR initiative, but extra efforts may be needed in breaking down the walls between functional departments in order to succeed.**

**The study results indicate that these four factors have facilitating influence on the decision to reengineer:**

- **Decentralization of decisions**
- **Existence of organic structural overlay**
- **Experience in mainframe computing**
- **Experience in Client/server computing**

**The following three factors, however, may facilitate both the reengineering decision as well as the eventual success:**

- **Inter-departmental integration**
- **Use influence in IS project selection**
- **IS-business planning integration**

**As can be seen, all 7 factors are potential sources of facilitating influence on the reengineering decision, providing empirical support to the notion that BPR involves multi-faceted organizational change which can not be adequately conceptualized by any single theoretical perspective. While factors related to IT competence such as experience in mainframe and client/server computing may facilitate the decision to reengineer, they are not critical in the eventual success.**

**On the other hand, factors having significant relationships beyond the initial decision include variables pertaining to innovative capacity of the organization and Strategy-IS interface. The only IS factor in this group: user influence in IS project selection, also relates to the organizational context of BPR. These findings strongly suggest that technical IT competence as a critical enabler is necessary but never sufficient for reengineering success. Organization contextual conditions such as interdepartmental integration, user influence in IS decisions and IS-business planning integration potentially have influence on reengineering implementation beyond the initial decisions. These results corroborate well with findings from a recent empirical study reported by Grover, et al. (1995) which revealed that, while both change management and technological competence problems were regarded as very difficult by project participants, the former was related much more strongly to reengineering success than the latter.**

**References (available upon request from James T. C. Teng )**

## Table 1: Study Results

| Independent Variables | Mean (Overall) (N = 313) | Mean (BPR) (N=219) | Mean (Non-BPR) (N = 94) | T-Test for BPR Decisions | Correlation with BPR Success |
|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- |
| *Innovative Capacity of the Organization* | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 1) Interdepartmental integration | 4.94 | 5.11 | 4.55 | *** | .2400 *** |
| 2) Centralization of decisions | 5.07 | 4.95 | 5.34 | ** | .0252 |
| 3) Existence of organic structural overlay | | | | *** | n.s. |
| ***IS Maturity and Influence*** | | | | | |
| 4) Experience in mainframe computing (years) | 21.47 | 22.72 | 18.20 | ** | .0918 |
| 5) Experience in client/server computing (years) | 3.16 | 3.43 | 2.16 | *** | .0547 |
| 6) IS department influence in IS project selection | 3.89 | 3.73 | 4.27 | ** | - .1598 * |
| ***Strategy-IS Interface*** | | | | | |
| 7) IS-Business Planning Integration | 5.12 | 5.32 | 4.67 | *** | .2203 *** |

**+ Maximum sample size (N) are indicated in the table. Actual N for the various cells vary slightly.**

*** *p* < .05 ** *p* < .01 *** *p* < .001**